REMARKS/ARGUMENTS

Claim 4 stands withdrawn, with claims 1-3, 5-12, 14-25, 27 and 29-43 rejected and claims 13, 26 and 28 objected to in the outstanding Official Action. Claim 23 has been amended and newly written claim 47 added for consideration. Accordingly, claims 1-3, 5-43 and 47 are the only claims remaining in this application.

The Examiner's agreement on page 2 of the Official Action that claims 1, 22 and 23 are generic to all species is very much appreciated. It is noted that, upon allowance of any of claims 1, 22 and/or 23, withdrawn claim 4 will be considered on the merits without need for refilling of the application.

Also on page 2 of the Official Action, the Examiner objects to claim 23 because of informality in the claim language. The claim has been amended as proposed by the Examiner, thereby obviating any further objection to that claim.

On pages 2 and 3 of the outstanding Official Action, claims 13, 26 and 28 are indicated as containing allowable subject matter. This indication is very much appreciated, although Applicants do not believe it necessary to rewrite these claims in independent form. Still, the indication and recognition of allowable subject matter in these claims is helpful in the prosecution of this application.

Telephone Interview with Examiner Smith on November 20, 2008

In reviewing the statutory basis for rejection of the claims, it is noted that while independent claims and some dependent claims are identified as having a statutory basis for rejection, most of the pending claims do not. For example, on pages 3-5 of the Official Action,

there is a statutory basis for the rejection of claim 1 under 35 USC §102 as being anticipated by Jenkins (U.S. Patent 5,917,596). While, under that statutory basis for rejection of only claim 1, there is a discussion of how the Examiner believes that claim 1 is anticipated. However, there are additional discussions purportedly relating to claims 9, 16-19, 21, 33, 39, 40, 41 and 43, but none of these discussions indicate that the claims are rejected under the same statutory basis as claim 1, i.e., under 35 USC §102(b) as anticipated by Jenkins. The same is true with respect to other statutory rejections throughout the Official Action.

On November, 2008, Applicants' undersigned representative contacted Examiner Smith who acknowledged that there was a lack of statutory basis for the rejection of the dependent claims and indicated that he would fax an Interview Summary record correcting this Official Action and the record to establish that the statutory basis was applied to all of the claims discussed under the statutory basis heading, i.e., for the example above, claims 1, 9, 16-18, 21, 33, 39-41 and 43 are rejected under 35 USC §102(b) as being anticipated by Jenkins. The faxed Interview Summary confirming the above and dated November 20, 2008 has been received by Applicant's undersigned representative. As a result, applicants are treating each of the rejections in the outstanding Official Action as proper and will respond in detail to each basis.

The Court of Appeals for the Federal Circuit has noted in the case of *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 USPQ 481, 485 (Fed. Cir. 1984) that "[a]nticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim."

1. No teaching of any "information modulating" in Jenkins

Claim 1 specifies a "modulation means for information modulating radiation output by each of said one or more lasers." The Examiner alleges that the claimed "modulation means" is shown in Jenkins as item 726. It is noted that item 726 is an "acousto-optic modulator 726" (column 17, line 67) and the Examiner's allegation is correct in that Jenkins discloses a modulator. However, independent claim 1 does not just specify a "modulator" but rather specifies the interrelationship of structures and the modulation means must be interrelated with the claimed "one or more lasers" in order to **"information"** modulate the radiation output by the lasers. As will be understood, a structure for information modulating a laser beam is not present in the Jenkins prior art.

A review of Jenkins indicates that "[t]he modulator 726 provides phase modulation of incident light at a phase modulation frequency of 60 MHz . . . ." (Column 18, lines 2-4). The Examiner has not provided any indication of how or where the modulation of acousto-optic modulator 726 provides any "information" modulation. The imposition of a constant steady state 60 MHz frequency onto the light beam does not cause any "information" to be carried by the beam. Thus, the Jenkins reference does not provide any "information" modulated radiation and therefore fails to disclose this structure and this structural interrelationship, both of which are positively recited in independent claims 1 and 22.

Because this claimed structure and claimed interrelationship is not disclosed in Jenkins, the rejection under 35 USC §102 fails with respect to not only claim 1, but all claimed dependent thereon and any further rejection thereunder is respectfully traversed.

2. No disclosure of "outputting" the "information modulated" light from the device

Applicants' independent claim 1 specifies "output means for outputting the modulated radiation produced by the modulation means." Quite clearly, if the modulation means does not produce "information" modulated radiation, there can be no output means for outputting that modulated radiation.

Additionally, while the Examiner suggests that "the output means transmits the modulated radiation produced by the modulation means (740)" (bottom of page 3 of the Official Action), in fact, the radiation modulated by the acousto-optic modulator 726 is **never output** from the device. The Examiner's attention is directed to Jenkins, column 18, beginning at line 48, in which it describes a portion of the laser 706 providing an output beam 708 which is reflected from beam splitter 710 and that reflected beam 714 is provided to the acousto-optic modulator 726, the only "modulator" identified by the Examiner. After modulation, this beam is provided to mode converter 728 which provides an output beam 730 and states that "[t]he beam 730 is transmitted through the combiner plate 732 to be incident on the detector 734 where it creates interference with the beam 746 reflected from the combiner plate 732." (Column 18, lines 55-58). The beam 730 terminates on the detector 734 and does not escape and as a result cannot be transmitted or outputted from the device.

3. Jenkins actually teaches away from any "information modulated" radiation being transmitted away from the device

Clearly, in view of the above, because no portion of the "modulated" laser light is ever provided as an output of the Jenkins device, it actually suggests the transmission of only unmodulated light. As clearly discussed at column 18, lines 12-47, the constant and un-

modulated output of the laser 706 is provided through various beam splitters and plates through the telescoping lenses and is output as constant non-modulated beam 740. It is noted that it is the unmodulated reflected light coming into lens 722 (received from the targeted object) which is then reflected by plates 716 and 732 and then directed to the detector 734 forming interference with the modulated output from the mode converter 728.

As a result, Jenkins clearly teaches away from any transmitted modulated output, let alone a transmitted output which is modulated with "information" as specifically required by Applicants' independent claims. The structure in Jenkins not only fails to disclose the claimed structure and claimed interrelationship between structures, it would actually lead one of ordinary skill in the art away from the claimed invention, i.e., Jenkins teaches transmission of an unmodulated laser beam.

Accordingly, there is simply no basis for rejecting claim 1 or claims dependent thereon as being anticipated or obvious in view of Jenkins and therefore any further rejection thereunder is respectfully traversed.

Claims 1, 33 and 34 stand rejected under 35 USC §102 as being anticipated by Wojnarowski (U.S. Patent 5,525,190). Applicants have carefully reviewed the Wojnarowski reference and can find no disclosure of any "modulation means" or "output means." The Examiner does not indicate how or where Wojnarowski contains any disclosures of these structures which are positively recited in independent claim 1. Moreover, the Examiner does not provide any indication of how or where there is any "information modulating" of radiation in Wojnarowski or where there is any claimed interrelationship between the modulation means and the output means.

Because the burden is on the Examiner to establish where or how a prior art reference teaches claimed structure and structural interrelationships, the Examiner has simply failed to meet his burden with respect to claim 1 and any further rejection thereunder is respectfully traversed. Dependent claims 33 and 34 ultimately depend from claim 1 and therefore the above comments regarding claim 1 are herein incorporated by reference.

The Examiner fails to establish any basis for rejection of claims 1, 33 and 34 under 35 USC §102 over the Wojnarowski reference and any further rejection thereunder is respectfully traversed.

Claims 1-3, 5, 6, 8-12, 18, 19, 37 and 38 stand rejected under 35 USC §103 as unpatentable over Foord ("A Hollow Waveguide Integrated Optic System") in view of Sheem (U.S. Patent 5,515,464). In rejecting independent claims 1 and 22, the Examiner alleges that Foord teaches "modulation means to for [sic] information modulating radiation output by each of said one or more lasers (quarter-wave plate) . . . ." (Office Action page 6).

In actuality, the Examiner has cited no portion of the Foord reference which contains any disclosure of "information modulating" any laser radiation. Should the Examiner believe otherwise, he is respectfully requested to identify any portion of the Foord teaching which he contends discloses "information modulating."

Furthermore, the Examiner's suggestion that the "quarter-wave plate" teaches "information modulating" is also incorrect. First, applicants can find no disclosure in the Foord reference of any quarter-wave plate, although there is a reference to a "half-wave plate" on page 347, Figure 1(a). Is the Examiner attempting to rely upon the half-wave plate in the Foord reference or is there a quarter-wave plate disclosed somewhere in the Sheem reference? Again,

clarification of where either of the prior art references is believed to teach a "quarter-wave plate" is respectfully requested.

Secondly, if the Examiner can find a "quarter-wave plate," he is again respectfully requested to indicate how this modulates a laser beam traveling therethrough. The laser beam is a steady state, unmodulated laser beam on both sides of the plate. While the polarization of the beam is shifted by passing through the quarter-wave plate, there is no modulation of the beam in any fashion, let alone the claimed "information modulating" of a beam.

The Examiner's admission that "Foord et al. is silent to an output means for outputting the modulated radiation produced by the modulation means" is very much appreciated. The Examiner cites Sheem as purportedly teaching the connection of an optical fiber to a hollow channel and cites the Sheem abstract. Actually, while Sheem discloses a "hollow channel," it does not disclose the claimed "hollow core optical waveguide" recited in claims 1, 22 and 23.

Those of ordinary skill in the art will clearly understand the difference between a hollow core optical waveguide on the one hand and a channel in which a fiber optic waveguide is mechanically fixed (as shown in the Sheem reference). Sheem discloses the optical fiber 5 located in channel 2 with a "core-extension 6" as a structure for connecting the optical fiber core 7 to the end of the channel waveguide 1. It is noted that the channel waveguide is not a "hollow core optical waveguide" since the channel waveguide is created by filling the channel with material (see column 4, lines 18-23).

Thus, without the claimed disclosure of the hollow core optical waveguides for guiding radiation from the one or more lasers to the modulation means and then from the modulation means to the output means, Sheem cannot supply the elements missing from the Foord reference.

Accordingly, even if combined, Foord and Sheem do not disclose the subject matter in claims 1 or 22 or any claims dependent thereon.

Additionally, the Examiner has failed to provide any of the analysis required by the U.S. Supreme Court in the *KSR* case for identifying some reason or motivation for combining these two references. The Examiner merely makes the conclusory statement that it would be obvious to combine the references. Thus, even if the references disclosed the structures, the Examiner has not set out a *prima facie* case of obviousness because he has failed to provide any explicit "analysis" as to the reason for combining portions of the two references. Accordingly, any further rejection of independent claims 1 and 22 or claims dependent thereon over the Foord/Sheem combination is respectfully traversed.

Claim 7 stands rejected over the Foord/Sheem combination, further in view of Nelson (U.S. Patent 3,984,332). Inasmuch as claim 7 ultimately depends from claim 1, the above comments distinguishing over the Foord/Sheem combination are herein incorporated by reference.

Because claim 1 is patentable over the Foord/Sheem combination, claim 7 will similarly be patentable over the Foord/Sheem combination because the Examiner fails to even allege that the added Nelson reference teaches the structures and structural interrelationships recited in claim 1 which are missing from the Foord and Sheem combination. Further, the Examiner fails to provide any explicit "analysis" as to why one would pick and choose elements from the Foord, Sheem and Nelson references and then combine them in the manner of Applicants' claim 7. Any further rejection of claim 7 is respectfully traversed.

Claims 14 and 15 stand rejected under 35 USC §103 as unpatentable over the Foord/Sheem combination, further in view of Gotoda (U.S. Patent 6,643,309). Inasmuch as claims 14 and 15 ultimately depend from claim 1, the above comments distinguishing over the Foord/Sheem combination are herein incorporated by reference.

Because claim 1 is patentable over the Foord/Sheem combination, claims 14 and 15 will similarly be patentable over the Foord/Sheem combination because the Examiner fails to even allege that the added Gotoda reference teaches the structures and structural interrelationships recited in claim 1 which are missing from the Foord and Sheem combination. Additionally, the Examiner fails to provide any explicit "analysis" as to why one would pick and choose elements from the Foord, Sheem and Gotoda references and then combine them in the manner of Applicants' claims 14 and 15. Any further rejection of claims 14 and 15 is respectfully traversed.

Claims 23, 29, 30 and 31 stand rejected under 35 USC §103 as unpatentable over Foord in view of Sheem. As noted above, the Foord/Sheem combination does not disclose "hollow core optical waveguides" or the guiding of radiation to a detector by way of "at least one hollow core optical waveguide." Accordingly, even if the references were combined, there is no disclosure of the subject matter of claim 23 or claims 29, 30 and 31 dependent thereon.

Moreover, the Examiner provides no explicit "analysis" as required by the Supreme Court in *KSR* for picking and choosing elements from the Foord and Sheem references and then combining them in the manner of independent claim 23 or dependent claims 29-31. Accordingly, any further rejection of claims 23 and 29-31 under 35 USC §103 is respectfully traversed.

Claim 32 stands rejected under 35 USC §103 as unpatentable over Foord in view of Sheem and Nelson. Claim 32 depends from claim 23 and the above comments regarding the Food/Sheem combination being distinguished over by claim 23 are herein incorporated by reference. Again, the Examiner includes a third reference to Nelson (U.S. Patent 3,984,332) but does not allege that the Nelson reference contains any disclosure of the missing structure or structural interrelationships required by claim 23.

Therefore, even if the Foord/Sheem combination were further combined with Nelson, there is no disclosure of the subject matter of claim 23 or claim 32 ultimately dependent thereon. Additionally, the Examiner fails to provide any motivation or rationale for picking and choosing elements from these references and then combining them in the manner of claim 32. Accordingly, there is no further basis for rejecting claim 32 over the Foord/Sheem/Nelson combination.

Claim 42 stands rejected under 35 USC §103 as unpatentable over the Foord/Sheem combination, further in view of Wojnarowski (U.S. Patent 5,525,190). Inasmuch as claim 42 ultimately depends from claim 1, the above comments distinguishing over the Foord/Sheem combination are herein incorporated by reference.

Because claim 1 is patentable over the Foord/Sheem combination, claims 42 will similarly be patentable over the Foord/Sheem combination because the Examiner fails to even allege that the Wojnarowski reference teaches the structures and structural interrelationships recited in claim 1 which are missing from the Foord and Sheem combination. Additionally, the Examiner fails to provide any explicit "analysis" as to why one would pick and choose elements

from the Foord, Sheem and Wojnarowski references and then combine them in the manner of Applicants' claim 42. Any further rejection of claim 42 is respectfully traversed.

Claim 23 stands rejected under 35 USC §103 as unpatentable over Jenkins in view of Sheem. Neither Jenkins nor Sheem teach the use of hollow core optical waveguides in a receiver apparatus in which radiation is guided from an optical fiber to a detector through at least one hollow core optical waveguide. This is particularly true since claim 23 specifies that said "at least one hollow core waveguide guiding said radiation in two transverse directions." Again, how or where the claimed structures as well as the claimed interrelationship between structures is disclosed in the Jenkins/Sheem combination is not seen.

Moreover, the Examiner fails to provide any explicit "analysis" of how or why he picks and chooses components from the two references and then combines them in the manner of Applicants' independent claim 23. Accordingly, there is simply no *prima facie* case of obviousness of claim 23 or claims 24, 25 and 27 dependent thereon and any further rejection thereunder is respectfully traversed.

Claims 35 and 36 stand rejected under 35 USC §103 as unpatentable over Jenkins in view of Jones (U.S. Publication 2005/0213880). Inasmuch as claims 35 and 36 ultimately depend from claim 1, the above comments regarding claim 1 distinguishing over the Jenkins reference are herein incorporated by reference. The Examiner does not allege that the Jones reference contains any teaching of the modulation means or the output means which are both missing from the Jenkins patent. Accordingly, even if Jenkins and Jones were combined, there would be no disclosure of the claimed subject matter or the claimed interrelationship set out in independent claim 1 or claims 35 and 36 dependent thereon.

Additionally, the Examiner has not indicated how or why one of ordinary skill in the art would pick and choose elements from the Jenkins and Jones references and then combine them in the manner of independent claim 1 or dependent claims 35 and 36. Accordingly, there is simply no *prima facie* basis for rejecting claims 35 and 36 under 35 USC §103 and any further rejection thereunder is respectfully traversed.

Applicants offer newly written claim 47 which is written in broader form than original claim 1. Claim 1 includes "modulation means" and "output means" and therefore the construction of claim 1 will be limited under 35 USC §112(6th¶) to the corresponding disclosure in Applicants' specification and equivalents thereof. Claim 47 recites a "modulator" and a "transmitter" and therefore will be more broadly construed. However, the modulator must be one which "information" modulates the radiation from the lasers and the transmitter must output the "modulated radiation produced by the modulator." These features are clearly missing from the cited prior art references and therefore newly written claim 47 is believed clearly patentable thereover.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-3, 5-43 and 47 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, he is respectfully requested to contact Applicants' undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____
Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100